

Date: Friday, 31/10/2008 9:58:39 AM  
 User: Julie Dawson

## Process Sheet

|  |  |
|--|--|
| <b>Customer</b> : CU-DAR001 Dart Helicopters Services  | <b>Drawing Name</b> : 206L FWD X-TUBE                      |
| <b>Job Number</b> : 43104  |  |
| <b>Estimate Number</b> : 13220   |  |
| <b>P.O. Number</b> :   | <b>Part Number</b> : D206667103TRN                         |
| <b>This Issue</b> : 31/10/2008 <b>S.O. No.</b> :   | <b>Drawing Number</b> : D206-667-143 REV B                 |
| <b>Prsht Rev.</b> : NC   | <b>Project Number</b> : N/A                                |
| <b>First Issue</b> : 11 <b>Type</b> : CROSSTUBES   | <b>Drawing Revision</b> : B                                |
| <b>Previous Run</b> : 42707  | <b>Material</b> :  |
| <b>Written By</b> :  | <b>Due Date</b> : 06/11/2008 <b>Qty:</b> 1 <b>Um:</b> Each |
| <b>Checked &amp; Approved By</b> : <u>JLD 08.10.31</u>   |  |
| <b>Comment</b> : Est Rev:A 08-03-06 new issue DD verified by:ec<br>Est Rev B 08.04.02 removed polish EC verified by DD |  |

## Additional Product

Job Number:



|                |                              |                      |
|----------------|------------------------------|----------------------|
| <b>Seq. #:</b> | <b>Machine Or Operation:</b> | <b>Description :</b> |
|----------------|------------------------------|----------------------|

|     |          |                    |
|-----|----------|--------------------|
| 1.0 | D6002115 | Crosstube Material |
|-----|----------|--------------------|



**Comment:** Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

|                 |             |               |
|-----------------|-------------|---------------|
| Qty Part number | Description | Batch         |
| 1 D6002-115     | Crosstube   | <u>B34684</u> |

Check OD = 2.250", ID = 1.750"

*A-m 08.11.03*

|     |            |                            |
|-----|------------|----------------------------|
| 2.0 | MORI SEIKI | MORI SEIKI CNC LATHE LARGE |
|-----|------------|----------------------------|



**Comment:** MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA087

2-Turn first side as per Folio FA087

3-File down transition lines smooth.

*A-m 08.11.03*

|     |     |                              |
|-----|-----|------------------------------|
| 3.0 | QC1 | INSPECT ALL DIM TO DIM SHEET |
|-----|-----|------------------------------|



**Comment:** INSPECT ALL DIM TO DIM SHEET

*A-m 08.11.03*

|     |            |                            |
|-----|------------|----------------------------|
| 4.0 | MORI SEIKI | MORI SEIKI CNC LATHE LARGE |
|-----|------------|----------------------------|



**Comment:** MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA087

2-File down transition lines smooth.

3-Remove sand and plugs

*A-m 08.11.03*

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

Date: Friday, 31/10/2008 9:58:39 AM  
User: Julie Dawson

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 206L FWD X-TUBE

Job Number: 43104

Part Number: D206667103TRN

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

Am 08.11.03 ①

6.0

QC8

SECOND CHECK



Am 8-11-03



Comment: SECOND CHECK

7.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Am 8-11-04



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

8.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

Am 08.11.04 ①

9.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and stock in kanban rack

Location:

X-TUBE CELL Am 8-11-04

10.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

08/11/05

Job Completion



ME 08-11-04

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

|  |                                  |
|--|----------------------------------|
| <b>DART AEROSPACE LTD</b>                              | <b>Work Order:</b> <u>W3104</u>  |
| <b>Description:</b> Crosstube Assembly (206L High Fwd) | <b>Part Number:</b> D206-667-143 |
| <b>Inspection Dwg:</b> D206-667-143 <b>Rev:</b> B      | <b>Page 1 of 1</b>               |

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

|        | Inspection Sheet<br>Drawing Dimension | Tolerance     | Actual<br>Dimension | Accept | Reject | Method of<br>Inspection | Comments |
|--------|---------------------------------------|---------------|---------------------|--------|--------|-------------------------|----------|
| SIDE A | 2.240                                 | +0.005/-0.000 | 2.245               | /      |        |                         |          |
|        | 1.982                                 | +0.005/-0.000 | 1.987               | /      |        |                         |          |
|        | 2.019                                 | +0.005/-0.000 | 2.023               | /      |        |                         |          |
|        | 2.058                                 | +0.005/-0.000 | 2.063               | /      |        |                         |          |
|        | 2.097                                 | +0.005/-0.000 | 2.097               | /      |        |                         |          |
|        | 2.136                                 | +0.005/-0.000 | 2.136               | /      |        |                         |          |
|        | 2.176                                 | +0.005/-0.000 | 2.181               | /      |        |                         |          |
|        | 2.201                                 | +0.005/-0.000 | 2.203               | /      |        |                         |          |
|        |                                       |               |                     |        |        |                         |          |
|        | 0.125                                 | +/-0.010      | 0.125               | /      |        |                         |          |
|        | 0.400 x 30°                           | +/-0.010      | 0.400 x 30°         | /      |        |                         |          |
|        | R0.063                                | +/-0.010      | R0.063              | /      |        |                         |          |
|        | R0.500                                | +/-0.010      | R0.500              | /      |        |                         |          |
|        | 4.438                                 | +/-0.030      | 4.438               | /      |        |                         |          |
| SIDE B | 104.98                                | +/-0.020      | 104.980             | /      |        |                         |          |
|        | 2.240                                 | +0.005/-0.000 | 2.245               | /      |        |                         |          |
|        | 1.982                                 | +0.005/-0.000 | 1.987               | /      |        |                         |          |
|        | 2.019                                 | +0.005/-0.000 | 2.023               | /      |        |                         |          |
|        | 2.058                                 | +0.005/-0.000 | 2.063               | /      |        |                         |          |
|        | 2.097                                 | +0.005/-0.000 | 2.097               | /      |        |                         |          |
|        | 2.136                                 | +0.005/-0.000 | 2.136               | /      |        |                         |          |
|        | 2.176                                 | +0.005/-0.000 | 2.181               | /      |        |                         |          |
|        | 2.201                                 | +0.005/-0.000 | 2.203               | /      |        |                         |          |
|        |                                       |               |                     |        |        |                         |          |
|        | 0.125                                 | +/-0.010      | 0.125               | /      |        |                         |          |
|        | 0.400 x 30°                           | +/-0.010      | 0.400 x 30°         | /      |        |                         |          |
|        | R0.063                                | +/-0.010      | R0.063              | /      |        |                         |          |
|        | R0.500                                | +/-0.010      | R0.500              | /      |        |                         |          |
|        | 4.438                                 | +/-0.030      | 4.438               | /      |        |                         |          |

|                                |                               |                            |     |
|--------------------------------|-------------------------------|----------------------------|-----|
| <b>Measured by:</b> <u>g.m</u> | <b>Audited by:</b> <u>AWM</u> | <b>Prototype Approval:</b> | N/A |
| <b>Date:</b> <u>08.11.03</u>   | <b>Date:</b> <u>8.11.03</u>   | <b>Date:</b>               | N/A |

| Rev | Date     | Change                       | Revised by | Approved |
|-----|----------|------------------------------|------------|----------|
| A   | 04.05.06 | New Issue (P/O D206-667-103) | KJ/RF      |          |
| B   | 06.03.09 | Dwg Rev updated              | KJ/JLM     |          |

**DART**

|                  |                 |   |                        |
|------------------|-----------------|---|------------------------|
| DESIGN<br>PH     | DRAWN BY<br>PH  | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA            |                        |
| CHECKED<br>HDS   | APPROVED<br>HDS | DRAWING NO.<br>D206-667-143   | REV. B<br>SHEET 1 OF 3 |
| DATE<br>05.07.26 |                 | TITLE<br>CROSSTUBE ASS'Y (206L HIGH FWD) SCALE<br>NTS               |                        |
| A                | 00.11.17        | NEW ISSUE   |                        |
| B                | 05.07.26        | ADD HOLES AND NUT PLATES FOR<br>COMPATABILITY WITH BHT/AA SKIDTUBES |                        |

RELEASED  
05-07-26**UNDER REVIEW**

05/08/10 PH

re-draw detail F

01.10.31

| Qty | Part Number   | Description                        |
|-----|---------------|------------------------------------|
| X   | D206-667-143  | CROSSTUBE ASSEMBLY (206L HIGH FWD) |
| 1   | D6002-115     | CROSSTUBE                          |
| 2   | D2873-043     | NUT PLATE                          |
| 2   | D2873-045     | NUT PLATE                          |
| 2   | D2856-400-694 | ABRASION STRIP                     |
| 2   | D2891-1       | SUPPORT                            |
| 14  | MS20601AD4W8  | RIVET (OR NAS9302B-4-8)            |
| 4   | MS21920-20    | CLAMP                              |

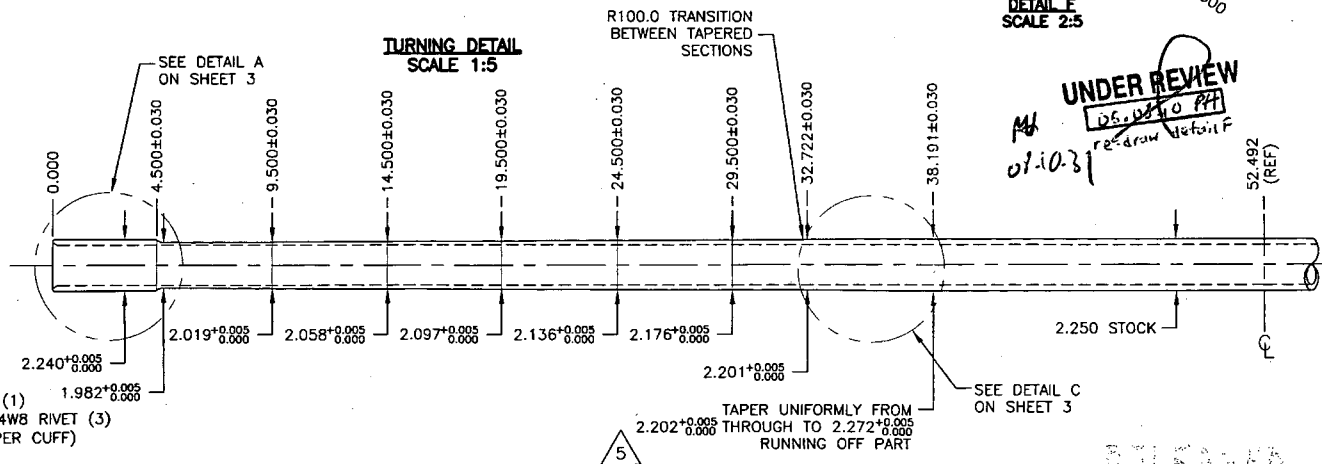
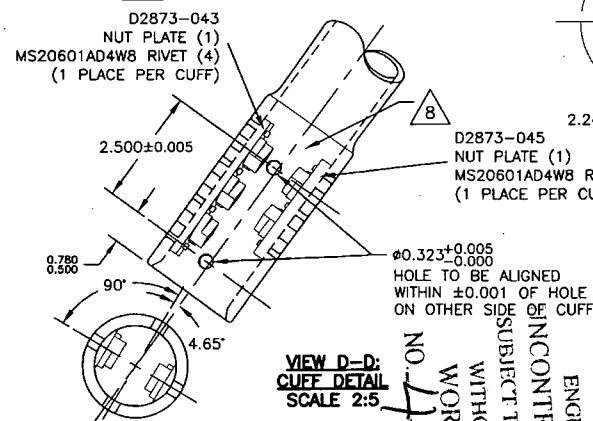
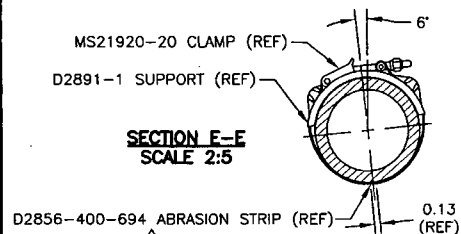
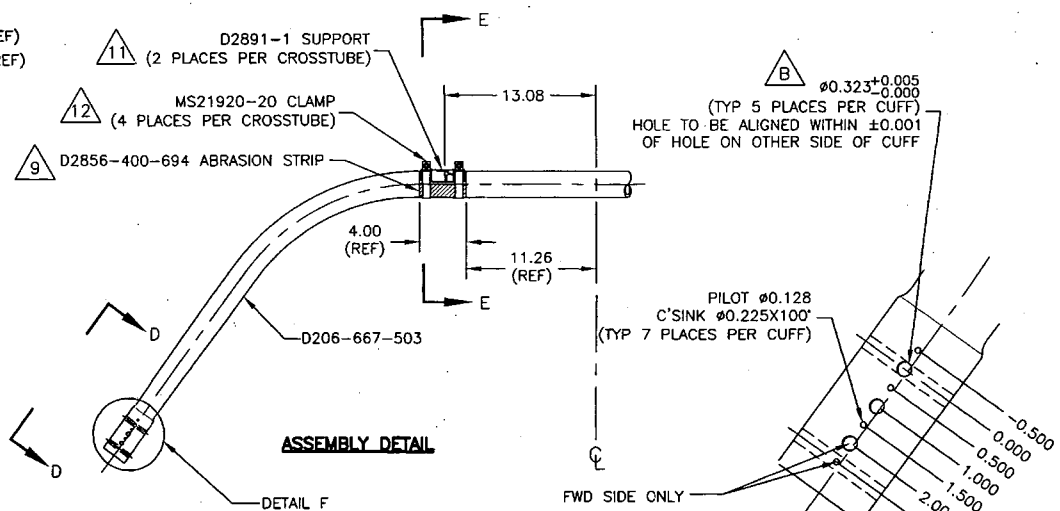
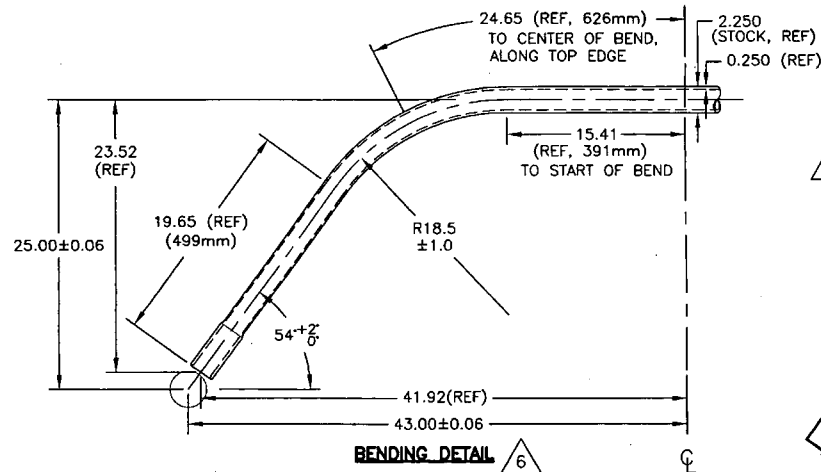
**GENERAL NOTES:**

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6002-115  
FINISHED LENGTH = 104.98±0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-694 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2891-1 SUPPORT, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) IT IS OPTIONAL TO SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX 241/291 SEALANT.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 43104

Copyright © 2000 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



**UNDER REVIEW**

05-07-26

01-10-31

re-draw Detail F

COPYRIGHT © 2000 BY DART AEROSPACE LTD.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

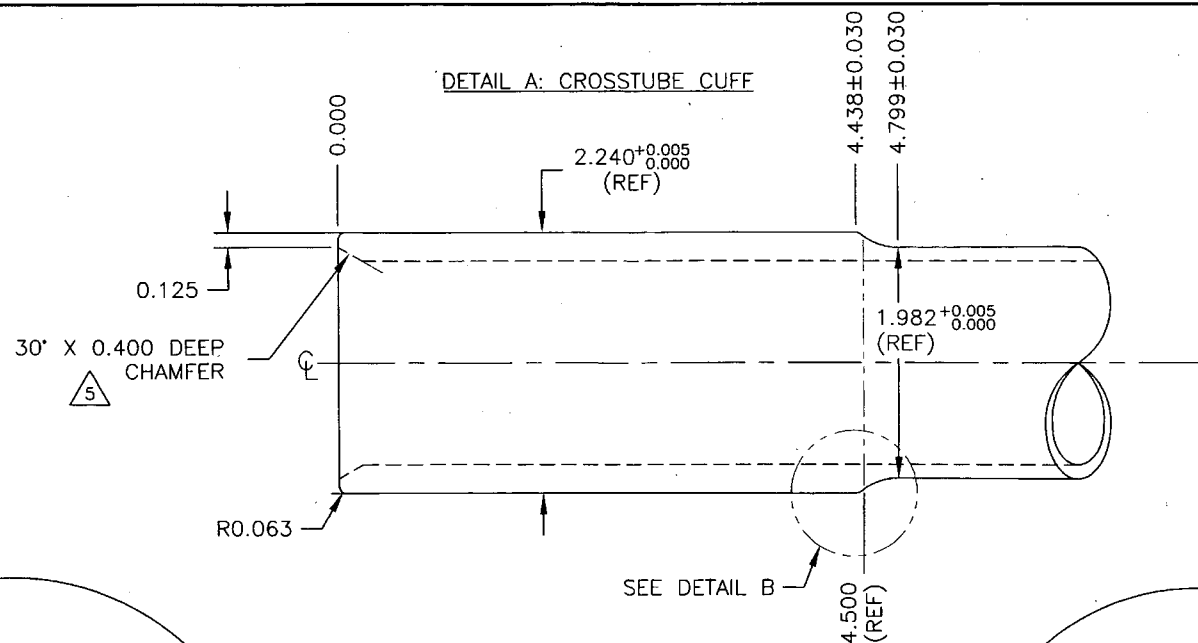
| DESIGN   | DRAWN BY | DART                            | DART AEROSPACE LTD.       |
|----------|----------|---------------------------------|---------------------------|
| PH       | PH       |                                 | WARRIMUR, ONTARIO, CANADA |
| CHECKED  | APPROVED | DRAWING NO.                     | REV. B                    |
| DS       | DS       | D206-667-143                    | SHEET 2 OF 3              |
| DATE     |          | TITLE                           | SCALE                     |
| 05.07.26 |          | CROSSTUBE ASS'Y (206L HIGH FWD) | 1:10                      |

SHOF COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
WITHOUT NOTICE  
WORK ORDER  
NO. 473104

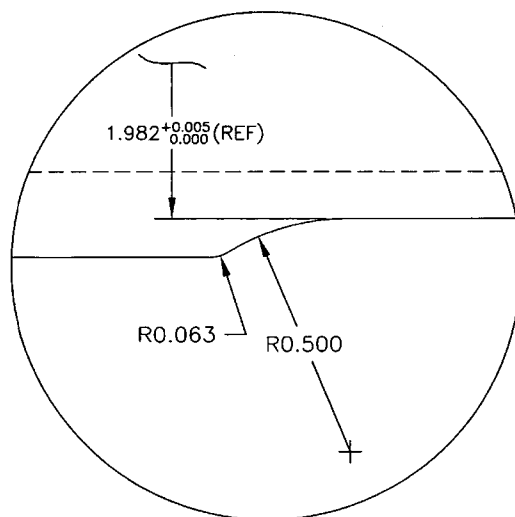
05.07.26 #

**UNDER REVIEW**  
 06.12.10 PH  
 re-align detail F  
 01.10.31

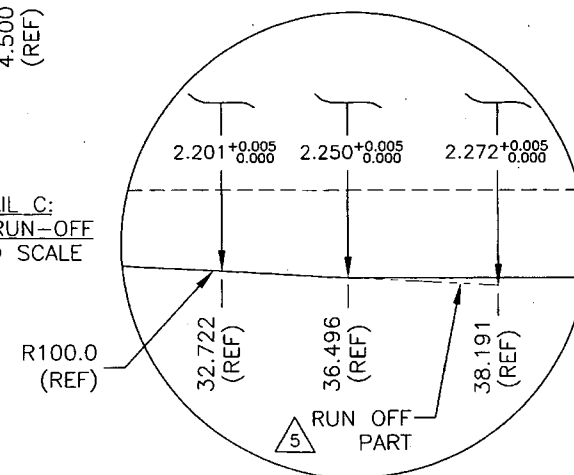
**DETAIL A: CROSSTUBE CUFF**



**DETAIL B: CUFF  
 TRANSITION  
 SCALE 4:1**



**DETAIL C:  
 TAPER RUN-OFF  
 NOT TO SCALE**



|  |  |         |                                 |          |       |              |  |
|--|--|---------|---------------------------------|----------|-------|--------------|--|
| COPYRIGHT © 2000 BY DART AEROSPACE LTD.  |  | DESIGN  | PH                              | DRAWN BY | PH    | <b>DART</b>  | DART AEROSPACE LTD.<br>HAWKESBURY, ONTARIO, CANADA |
| THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. |  | CHECKED | PH                              | APPROVED | PH    | DRAWING NO.  | REV. B   |
|  |  | DATE    | 05.07.26                        |          |       | D206-667-143 | SHEET 3 OF 3                                       |
|  |  | TITLE   | CROSSTUBE ASS'Y (206L HIGH FWD) |          | SCALE | 1:1          |  |

SHOP COPY  
 RETURN TO  
 ENGINEERING  
 UNCONTROLLED COPY  
 SUBJECT TO AMENDMENT  
 WITHOUT NOTICE  
 WPK/PHD/R  
 NO 23107